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EXAMINER	
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2419	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/577,641	LIU ET AL.	
	Examiner	Art Unit	
	EMMANUEL MAGLO	2419	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,12-15 and 20-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5, 12-15, and 20-26* is/are rejected.

7)☒ Claim(s) *6-11, 16-19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 April 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 6-11 and 16-19 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 6-11 and 16-19 have not been further treated on the merits.

2.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-5 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant's specification provides no direction on how *the length and length types required by the system* depend on a tradeoff between the transmission efficiency and TFCI decoding reliability. The aforementioned claim limitations are found in independent claim 1. Therefore, due to the lack of sufficient direction provided by the specification, it would require undue experimentation by one skilled in the art to make and use the

claimed invention. Claims 2-5 depend on the independent claims cited above and fail to resolve the deficiencies therein.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1, 2, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mohaban et al. (US 7,002,993 B1), hereinafter referred to as Mohaban, in view of Lupien et al. (US 2002/0097701 A1), hereinafter referred to as Lupien.

Regarding claims 1 and 12, Mohaban discloses a method of radio transmission, (col. 10 lines 34-39: transmission media includes radio transmission), of real-time IP packets using header compression, (see abstract, summary), comprising:

header-compressing the RTP packets, (fig. 5 showing header compression of RTP packet), *to obtain header-compressed RTP packets*, (fig. 5; note compressed RTP

segment 580, col. 6 lines 3-15. Furthermore see fig. 7 header-compressed RTP packets (compressed RTP segment)), *having a plurality of different header compression lengths,*

pre-configuring header compression lengths and length types required by the system, (col. 5 lines 16-21; shown in fig. 7 is the specified length field 710. Length field 710 is a 7-bit field indicating the length of the RTP payload. Note because of different types of IP traffic, col. 4 lines 19-20, (voice over Internet Protocol traffic, to Video over IP and to streaming media), communication interface 918 (fig. 9) sends and receives electrical, electromagnetic or optical signals that carry digital data streams representing various types of information), *and*

PDU-size adapting the plurality of different header compression lengths of the header-compressed RTP packets, so as to comply with said lengths and length types required by the system, (col. 5 lines 16-23: the RTP segments are adapted to the pre-configured length of pre-configured threshold. this constitutes the size).

Although Mohaban obtaining header-compressed RTP packets, it does not explicitly disclose obtaining header-compressed RTP packets *having a plurality of different header compression lengths.*

Lupien, in the same field of endeavor, discloses compressing and sending compressed header over wireless link. With reference to fig. 5, Lupien discloses header-compressed packets *having a plurality of different header compression lengths.*

It would have been obvious to a person of ordinary skill at the time the invention was made to implement Mohaban with the teaching of Lupien so that various frame length can be used to send compressed header.

Regarding claim 2, Mohaban discloses the step of header-compressing an RTP packet further comprising:

marking a compressed header and an RTP payload, and separating the compressed header from the RTP packet based on said marking before PDU-size adapting the header-compressed RTP packet, and then PDU-size adapting the separated compressed header, (col. 6 lines 58-63: fig. 7 M field 708 is a one-bit field carrying the RTP header's marker bit so that he length of the RTP payload does not include the header of the RTP segment or the RTP extension header)

6. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mohaban in view of Lupien and further in view of Ekudden et al. (US 2001/0041981 A1), hereinafter referred to as Ekudden.

Regarding claim 3, *after separating the compressed header from the RTP payload based on said marking, further dividing the RTP payload into blocks of different error sensitivities based on the RTP payload format information, then PDU-size adapting the separated compressed header.*

Mohaban discloses the RTP payload format information, PDU-size adapting the compressed header, except explicitly *dividing the RTP payload into blocks of different error sensitivities based on the RTP payload format information.*

Ekudden, in redundancy encoding of speech, teaches [0027], [0028]:(see fig. 1) that within the payload 14 is a payload header 16 and an encoded data 18, (that is the payload is divided into blocks) to transmit only a partial redundancy, i.e., a redundancy only for the more error sensitive bits in the speech frames of the encoded data 18. In other words, the bits for which redundancy is transmitted are preferably those bits which have been tested and deemed to be necessary for achieving a certain predefined characteristics of speech quality. Alternatively, the error sensitivity testing may be performed on a group or block of bits.

It would have been obvious to a person of ordinary skill at the time the invention was made to implement Mohaban with the teaching of Ekudden so that the possibility to use extra redundancy is built into the RTP payload.

Regarding claim 4, *after dividing the RTP payload into blocks of different error sensitivities, combining the compressed header with at least one data blocks of the RTP payload, then PDU-size adapting the data blocks containing said compressed header.* Mohaban discloses the claimed invention, (*the RTP payload, adapting to a predefined size, combining the compressed header with at least one data blocks of the RTP payload*), except explicitly *dividing the RTP payload into blocks of different error sensitivities.*

Ekudden teaches [0027], [0028]:(see fig. 1) that within the payload 14 is a payload header 16 and an encoded data 18, (that is the payload is divided into blocks) to transmit only a partial redundancy, i.e., a redundancy only for the more error sensitive

bits in the speech frames of the encoded data 18. In other words, the bits for which redundancy is transmitted are preferably those bits which have been tested and deemed to be necessary for achieving a certain predefined characteristics of speech quality. Alternatively, the error sensitivity testing may be performed on a group or block of bits.

It would have been obvious to a person of ordinary skill at the time the invention was made to implement Mohaban with the teaching of Ekudden so that the possibility to use extra redundancy is built into the RTP payload.

Regarding claim 5, *the data blocks containing the compressed header and the remaining RTP payload data blocks.*

Mohaban discloses the claimed invention except explicitly *the data blocks containing the compressed header and the remaining RTP payload data blocks.*

Ekudden teaches, [0027], the payload 14 is made of a payload header portion 16 and a data portion 18.

It would have been obvious to a person of ordinary skill at the time the invention was made to implement Mohaban with the teaching of Ekudden so that the data block represents an aggregated data associated with various data such as voice over IP, video over IP and streaming media.

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mohaban in view of Reitter et al. (US 2005/0213546 A1), hereinafter referred to as Reitter.

Regarding claim 13, Mohaban discloses a method of transmitting real-time IP packets using header compression, comprising:

header-compressing RTP packets, (fig. 5 showing header compression of RTP packet), *and marking a compressed header and an RTP payload; separating the compressed header from the RTP payload based on said marking, to respectively form PDCP layer PDUs before mapping them to different RLC entities; and transmitting the separated compressed header and RTP payload*, (col. 6 lines 58-63: fig. 7 M field 708 is a one-bit field carrying the RTP header's marker bit so that the length of the RTP payload does not include the header of the RTP segment or the RTP extension header). Mohaban discloses the claimed invention except explicitly *form PDCP layer PDUs before mapping them into different RLC entities.*

Reitter discloses in Method and device for transmitting IP packets between a radio network controller (RNC) and another element of a mobile radio network, [0031]: forwarding packet to different layer, the lower layer (e.g. *PDCP* layer). The lower layer can interpret the field of the IP packet including information about the coder-decoder mode on different terminal

It would have been obvious to a person of ordinary skill at the time the invention was made to implement Mohaban with the teaching of Ekudden and further with the teaching of Reitter so that the possibility to use extra redundancy is built into the RTP payload.

8. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mohaban in view of Reitter and further in view of Ekudden

Regarding claim 14, *after separating the compressed header from the RTP payload, PDU-size adapting the compressed header*, (col. 5 lines 16-23: the RTP segments are adapted to the pre-configured length of pre-configured threshold. this constitutes the size), *such that the plurality of different header compression lengths obtained when header-compressing the RTP packet are adapted to lengths and length types required by the system, and then making the PDU-size-adapted compressed header and the RTP payload to respectively form PDCP layer PDUs before mapping them into different RLC entities.*

Mohaban discloses the RTP payload format information, PDU-size adapting the compressed header, except explicitly *dividing the RTP payload into blocks of different error sensitivities based on the RTP payload format information, and form PDCP layer PDUs before mapping them into different RLC entities.*

Ekudden discloses [0027], [0028]:(see fig. 1) that within the payload 14 is a payload header 16 and an encoded data 18, (that is the payload is divided into blocks) to transmit only a partial redundancy, i.e., a redundancy only for the more error sensitive bits in the speech frames of the encoded data 18. In other words, the bits for which redundancy is transmitted are preferably those bits which have been tested and deemed to be necessary for achieving a certain predefined characteristics of speech

quality. Alternatively, the error sensitivity testing may be performed on a group or block of bits.

Ekudden discloses the claimed invention except explicitly *form PDCP layer PDUs before mapping them into different RLC entities.*

Reitter discloses in Method and device for transmitting IP packets between a radio network controller (RNC) and another element of a mobile radio network, [0031]: forwarding packet to different layer, the lower layer (e.g. *PDCP* layer). The lower layer can interpret the field of the IP packet including information about the coder-decoder mode on different terminal

It would have been obvious to a person of ordinary skill at the time the invention was made to implement Mohaban with the teaching of Ekudden and further with the teaching of Reitter so that the possibility to use extra redundancy is built into the RTP payload.

Regarding claim 15, *after separating the compressed header from the RTP payload, further dividing the RTP payload into blocks of different error sensitivities based on RTP payload format information*,

Mohaban discloses the RTP payload format information, PDU-size adapting the compressed header, except explicitly *dividing the RTP payload into blocks of different error sensitivities based on the RTP payload format information.*

Ekudden teaches [0027], [0028]:(see fig. 1) that within the payload 14 is a payload header 16 and an encoded data 18, (that is the payload is divided into blocks) to transmit only a partial redundancy, i.e., a redundancy only for the more error sensitive

bits in the speech frames of the encoded data 18. In other words, the bits for which redundancy is transmitted are preferably those bits which have been tested and deemed to be necessary for achieving a certain predefined characteristics of speech quality. Alternatively, the error sensitivity testing may be performed on a group or block of bits.

It would have been obvious to a person of ordinary skill at the time the invention was made to implement Mohaban with the teaching of Ekudden so that the possibility to use extra redundancy is built into the RTP payload.

9. Claims 20, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mohaban in view of Reitter.

Regarding claim 20, *a method of receiving real-time IP packets using header compression, wherein a compressed header of the header-compressed packet,* (fig. 5, col. 6 lines 7-9: compressed header 582 after the conventional packet is compressed), *is separated from an RTP payload,* (fig. 5 note structure of compressed RTP segment 580: compressed header is separated from payload), *thereof at the transmitting end to form different PDCP layer PDUs that are transmitted on different RLC entities, said method comprising: receiving and extracting the compressed header and the RTP payload,* (fig. 5), *from SDUs of the RLC entities; and combining the extracted compressed header with the RTP payload,* (fig. 7 shows the extracted compressed header and the RTP payload combined).

Mohaban discloses the claimed invention except explicitly the compressed header

forms *different PDCP layer PDUs that are transmitted on different RLC entities, said method comprising receiving and extracting the compressed header and the RTP payload from SDUs of the RLC entities*

Reitter discloses [0031]: forwarding packet to different layer, the lower layer (e.g. *PDCP* layer). The lower layer can interpret the field of the IP packet including information about the coder-decoder mode on different terminal. Reitter teaches further teaches, [0021]-[0024] outputting (extracting) the SDU parameter "as the RNC (2) express a type of SDU parameter, which a specific coder-decoder mode with a different RFCI from the corresponding RNC (2), which operates the corresponding recipient mobile terminal". It would have been obvious to a person of ordinary skill at the time the invention was made to implement Mohaban with the teaching of Reitter so that the Packet Data Convergence Protocol (e.g. *PDCP* layer) interpret the fields of the packet including information about the coder-decoder mode.

Regarding claims 21 and 22, Mohaban discloses a system of transmitting a real-time IP packet using header compression, comprising:

header compression unit for header-compressing RTP packets, (header-compressing the RTP packets, (fig. 5 showing header compression of RTP packet), and marking a compressed header and an RTP payload, (col. 6 lines 58-63: fig. 7 M field 708 is a one-bit field carrying the RTP header's marker bit so that the length of the RTP payload does not include the header of the RTP segment or the RTP extension header);

radio link adaptation unit for separating the compressed header from the RTP payload based on said marking, (note fig. 7 M field 708 separates the compressed

header from the RTP payload), *to respectively form PDCP layer PDUs before mapping them to different RLC entities*; and

transmitting unit for transmitting the separated compressed header and RTP payload, (voice is transmitted by sending the media payloads encapsulated in RTP packets of the type shown in fig.1)

Mohaban discloses the claimed invention except explicitly *forming PDCP layer PDUs before mapping them to different RLC entities.*

Reitter discloses [0031]: forwarding packet to different layer, the lower layer (e.g. *PDCP* layer). The lower layer can interpret the field of the IP packet including information about the coder-decoder mode on different terminal.

It would have been obvious to a person of ordinary skill at the time the invention was made to implement Mohaban with the teaching of Reitter to interpret the packet via the PDCD before sending to different entities.

With regards to the transmitting and receiving units it would have been obvious for one of ordinary skill that the method recited would required a corresponding apparatus to be implemented.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 23-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Mohaban.

Regarding claims 23 and 26, Mohaban discloses a RTCP packet scheduling method and an apparatus to process the method, (col. 7 lines 10-55), comprising:

monitoring whether or not the bandwidth requirement of the RTP packet exceeds a predetermined value, (Tables B and Table C:); *if the bandwidth requirement of the RTP packet exceeds the predetermined value and there is an RTCP packet to be transmitted, buffering the RTCP packet*, (fig. 9 main memory 906 to store the packets; in addition note a storage device 910, such as a magnetic disk or optical disk, is provided and coupled to bus 902 for storing information and instructions), *continuously monitoring the bandwidth requirement of the RTP packet*, (processor 904 coupled with bus 902 for processing information), *and transmitting the RTCP packet when the bandwidth requirement is lower than the predetermined value*, (fig. 3: at block 334, it is determined whether the aggregated media packet contains a sufficient number of RTP segments or has reached a pre-configured threshold length. If it is determined that the aggregated media packet contains a sufficient number of RTP segments or that the aggregated media packet has reached the pre-configured threshold length, then at block 336, the aggregated packet is sent to the relevant de-aggregator).

Regarding claim 24, Mohaban discloses *the bandwidth requirement being lower than the predetermined value comprises the case where the compression rate of the RTP packet is so high that the bandwidth requirement is lower than the predetermined value*,

(col. 7 lines 10-30 and Table B: as shown in the table bandwidth saving is indicative of the high compression rate of the RTP packets)

Regarding claim 25, Mohaban discloses t*he bandwidth requirement being lower than the predetermined value comprises the case where no RTP packet is transmitted*, (col. 2: Table A lists frame size, packets generated per second (pps), required bandwidth without headers, and payload size).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to EMMANUEL MAGLO whose telephone number is (571)270-1854. The examiner can normally be reached on Monday - Thursday 7:00 - 4:30 and every other Friday 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571)272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Emmanuel Maglo
Patent Examiner
February 18, 2009

/Hassan Kizou/
Supervisory Patent Examiner, Art Unit 2419